

REMARKS

Claims 40-49 remain pending. Reconsideration of the outstanding rejection is respectfully requested in light of the following remarks.

Claims 40-49 stand rejected under 35 USC 103(a) as being unpatentable over JP 06-162511 ("the '511 reference") in view of JP 08-46907 ("the '907 reference"). The rejection is traversed.

Each of the currently pending claims relates to a method of recording on an optical disc recording media, including the step of "pausing said transferring of said encoded information, to stop said record circuit on a first point at said optical disk recording media while maintaining said encoded information within said encoder." Thus, the present invention, as embodied by independent claims 40 and 49 relates to a method of recording on an optical disc recording medium such that a pause in the recording occurs with encoded data, yet to be recorded on said medium, within an encoder.

According to the Office Action, the '511 system has "encoded data within the writing circuit 32 . . . maintained in RAM 34." Please note however, the RAM 34 in the '511 reference is not a memory that maintains encoded data, prior to recording, as in the claimed invention. An English language version of the '511 reference is submitted herewith for the convenience of the Examiner, and is referenced in the following remarks.

In the '511 reference, as described in paragraph [0017], data read from the RAM 34 is interleaved and thereafter recorded in an optical disc. In other words, the interleave process is the same as a CD encode process. Thus, the RAM 34 stores data that is not yet encoded. As described in paragraph [0012] of the '511 reference, a sector unit read from RAM 34 is $1/75 \text{ sec} = 2352 \text{ bytes}$. A sector encoded by the CD encode process, however, is $1/75 \text{ sec} = 3136 \text{ bytes}$ because of an addition of error correction

code information. Again, this suggests that encoded data is not stored in RAM 34. Rather, unlike the claimed invention, the RAM 34 of the '511 reference only stores data prior to encoding.

Neither the '511 nor the '907 references cited by the Examiner teach or suggest "maintaining encoded information" during a pause operation during recording. More specifically, neither of the cited references, whether considered alone or in combination, teach or suggest the relationship between the encoding and the recording of data as in the claimed invention. Put another way, neither of the references teach or suggest the maintenance of encoded data in an encoder while a recording function is paused.

For at least these reasons, the rejection of claims 40-49 should be withdrawn. The pending application is submitted to be in condition for immediate allowance.

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- 2.**** shows the word which can not be translated.
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DETAILED DESCRIPTION

[Detailed Description of the Invention]**[0001]**

[Industrial Application] This invention relates to the approach of recording data and a program (it only being described as data below) on an optical disk (for example, CD-ROM) using a write once optical disk recording apparatus like the CD(Compact Disk)-ROM (read-only memory) writer of a postscript mold (write-once mold).

[0002]

[Description of the Prior Art] Conventionally, the record approach to this kind of optical disk was performed as follows. namely, the data which should be recorded on an optical disk 24 as shown in drawing 3 — a record-media top, such as a floppy disk 10, a hard disk 12, and a magneto-optic disk 14, — creating — source data — carrying out — these source data — a personal computer (personal computer) 16 — using — ISO — 9660 **** (conversion based on ISO9660 specification), yellow conversion (data conversion of YELLOW BOOK conformity) is carried out, and it accumulates in file (namely, CD-ROM data format — changing) equipment (for example, hard disk) 18 temporarily.

[0003] And the optical disk 24 was completed by changing into recordable CD-ROM writer 22 the CD-ROM data read from this file equipment 18 through the I/F (interface) card 20 for CD-ROM writers delivery and here at CD format using a personal computer 16 (it changing into the data of RED BOOK conformity), and recording them on an optical disk 24.

[0004]

[Problem(s) to be Solved by the Invention] however, by the conventional record approach shown in drawing 3 Since he was trying for recordable CD-ROM writer 22 to complete an optical disk 24 by recording at once the CD-ROM data transmitted from file equipment 18 with the personal computer 16 on an optical disk 24 If a record error like a truck jump error arises during record to an optical disk 24 While it becomes impossible to use the optical disk 24 and the optical disk 24 which equipped recordable CD-ROM writer 22 with a new optical disk, and had to rerecord from 1, and the record error produced becomes useless There was a trouble that the chart lasting time to the optical disk 24 became useless.

[0005] In case this invention was made in view of the above-mentioned trouble and recorded on an optical disk, even if a record error like a truck jump error produces it, it aims at offering the record approach to the optical disk using a write once optical disk recording apparatus which enabled it to use the optical disk which the record error produced.

[0006]

[Means for Solving the Problem] The record approach to the optical disk using the write once optical disk recording apparatus by this invention. The record error detection machine for detecting the memory for memorizing data to a write once optical disk recording apparatus and the error under record is formed. The data for record inputted into said write once optical disk recording apparatus are memorized in said memory. When the data read from said memory are recorded on an optical disk and the detection output from said record error detection machine arises during this record While stopping R/W of said memory, and record of said optical disk first, the data on said memory are secured. Subsequently, as compared with the data which read the last record data of said optical disk, and were secured on said memory, it is characterized by making it resume R/W of said memory, and record of said optical disk based on the comparison result.

[0007]

[Function] The data for record inputted into a write once optical disk recording apparatus are memorized in memory, and the data read from this memory are recorded on an optical disk. If an error detection output arises from a record error detection machine during this record, while stopping R/W of memory, and record of an optical disk first, the data on memory will be secured. Subsequently, as compared with the data which read the last record data of an optical disk and were secured on memory, R/W of memory and record of an optical disk are resumed from the field (position) which the record error produced based on the comparison result.

[0008]

[Example] Hereafter, one example of the record approach to the optical disk using the write once optical disk recording apparatus by this invention is explained using drawing 1 and drawing 2 . Drawing 2 explains the outline configuration of the equipment which enforces this invention approach, and let the same part as drawing 3 be the same sign. In drawing 2 , 10, 12, and 14 are the floppy disk as a record medium which records the data which should be recorded on an optical disk 24, respectively as source data, a hard disk, and a magneto-optic disk.

[0009] the source data which 26 is a personal computer and were created by this personal computer 26 like the personal computer 16 of drawing 3 on said floppy disk 10, the hard disk 12, or the magneto-optic disk 14 — ISO — 9660 **** (conversion based on ISO9660 specification), by carrying out yellow conversion (data conversion of YELLOW BOOK conformity), it changes into CD-ROM data format, and the function temporarily accumulated in file equipment (for example, hard disk) 18 is provided.

[0010] Said personal computer 26 possesses the function which sends out the CD-ROM data stored in file equipment 18 to said recordable CD-ROM writer 32 through the I/F (interface) card 20 for CD-ROM writers like the personal computer 16 of drawing 3 .

[0011] Said recordable CD-ROM writer 32 possesses RAM (random access memory) 34 for memorizing the data other than the well-known configuration of recordable CD-ROM writer 22 of drawing 3 , and the truck jump error detection machine 36 as an example of a record error detection machine. Said RAM34 is constituted so that R/W of data can be controlled by the host microcomputer in said recordable CD-ROM writer 32 (a host microcomputer, illustration abbreviation). Said truck jump error detection machine 36 is constituted so that a truck jump error may be detected based on the detection output from the photodetector in said recordable

CD-ROM writer 32 (illustration abbreviation).

[0012] The host microcomputer in said recordable CD-ROM writer 32 changes into CD format the CD-ROM data sent out through said I/F card 20 for CD-ROM writers from said personal computer 26 (it changes into the data of RED BOOK conformity), it writes in said RAM34 for every unit sector, and, subsequently to every unit sector, the function which records the data read from this RAM34 on said optical disk 24 is provided. Said unit sector expresses the smallest unit of data R/W, for example, expresses one frame (= 1 / 75(sec) = 2352 (cutting tool)).

[0013] While said personal computer 26 stops read-out of the data from said file equipment 18 based on the error detection output from said truck jump error detection machine 36 While resuming read-out of the 1st function which sends out the control signal the object for an R/W termination and for data reservation to the host microcomputer in said recordable CD-ROM writer 32, and the data for every unit sector from said file equipment 18 The object for a data comparison and the 2nd function which sends out the control signal for resumption of record to the host microcomputer in said recordable CD-ROM writer 32 are provided.

[0014] The host microcomputer in said recordable CD-ROM writer 32 It is based on the control signal the object for an R/W termination by the 1st function of said personal computer 26, and for data reservation. The 1st function to secure the data on said RAM34 while stopping R/W of the data of said RAM34, and record of the data to said optical disk 24, It is based on the control signal the object for a data comparison by the 2nd function of said personal computer 26, and for resumption of record. It compares with the data which read the last record data of said optical disk 24, and were secured on said RAM34. Based on the comparison result, the 2nd function which resumes the R/W for every unit sector of the data of said RAM34 and record of the data for every unit sector to said optical disk 24 is provided.

[0015] Below, the operation in the configuration of drawing 2 is used together, and drawing 1 is explained.

(b) the source data created on record media, such as a floppy disk 10, a hard disk 12, and a magneto-optic disk 14, as a personal computer 26 was shown in step 1 (it is only described as S1 below) of drawing 1 -- the conventional example -- the same -- ISO -- 9660 ****, carry out yellow conversion and write in file equipment 18 by using this translation data as CD-ROM data (S2).

[0016] (b) A personal computer 26 reads CD-ROM data from file equipment 18 for every unit sector, and delivery and this recordable CD-ROM writer 32 change it into recordable CD-ROM writer 32 through the I/F card 20 for CD-ROM writers at CD format (it changes into the data of RED BOOK conformity), and write it in RAM34 (S3).

[0017] (c) Subsequently, recordable CD-ROM writer 32 reads data from RAM34 for every unit sector, and records them on an optical disk (for example, CD-ROM) 24 (S4). This data logging performs data distribution (namely, interleave) for distributing the continuous error like the case of recordable CD-ROM writer 22 of drawing 3 , and is recorded. For example, distributed record of the data of one frame is carried out on 106 frames.

[0018] (d) "Whether it is with a truck jump error during record" is judged with the truck jump error detection vessel 36 during record to the optical disk 24 of the above (Ha) (S5). Record to an optical disk 24 is continued and completed at the time of "NO" (S6). At the time of "YES" While the 1st function of a personal computer 26 stops read-out of the data from file equipment 18 It is based on the control

signal the object for an R/W termination by the 1st function of a personal computer 26, and for data reservation, the host microcomputer in recordable CD-ROM writer 32 — R/W of the data of RAM34, and record of the data to an optical disk 24 — stopping (S7) — the data on RAM34 are secured (S8).

[0019] (e) Subsequently, it is based on the control signal the object for a data comparison by the 2nd function of a personal computer 26, and for resumption of record. The host microcomputer in recordable CD-ROM writer 32 compares with the data which read the last record data of an optical disk 24, and were secured on RAM34. (S9), Based on the comparison result (coincidence output), a truck jump error generating position (error generating field) is checked (S₁ checking by whether RF signal is in predetermined field of optical disk) 10), and record to an optical disk 24 is resumed.

[0020] Namely, while resuming read-out of the data for every unit sector from file equipment 18 by the 2nd function of a personal computer 26 It is based on the control signal for resumption of record by the 2nd function of a personal computer 26. The host microcomputer in recordable CD-ROM writer 32 The data read from file equipment 18 are written in RAM34 for every unit sector (it returns to S3), and the data read from RAM34 for every unit sector are recorded on an optical disk 24 (it returns to S4).

[0021] In said example, although the host microcomputer in the write once optical disk recording device based on the control signal from a personal computer was made to perform the termination of R/W of memory, the record termination of an optical disk, and reservation of the data on memory when a record error like a truck jump error arose during record, this invention is not restricted to this and a direct personal computer may be made to perform it.

[0022] In said example, although the host microcomputer in the write once optical disk recording device based on the control signal from a personal computer was made to perform the comparison with the data on memory, and the last record data of an optical disk, a truck jump error generating position check, and the restart of record to an optical disk when a record error like a truck jump error arose during record, this invention is not restricted to this and a direct personal computer may be made to perform it.

[0023]

[Effect of the Invention] The record approach to the optical disk using the write once optical disk recording apparatus by this invention If the data for record inputted into a write once optical disk recording apparatus are once memorized in memory, the data read from this memory are recorded on an optical disk and a record error like a truck jump error occurs during this record While stopping R/W of memory, and record of an optical disk first, the data on memory are secured. Subsequently, since it was made to resume R/W of memory, and record of an optical disk based on the comparison result as compared with the data which read the last record data of an optical disk and were secured on memory, the optical disk which the record error produced can be used. For this reason, since it does not become impossible like the conventional example to use the optical disk which the record error produced, the futility of an optical disk can be lost and the futility of chart lasting time can be excluded.

[Translation done.]